Exploring Dark Matter and Baryon Asymmetry: Higgs is the Key

Dr. Zhang will talk about a few possible connections between the Higgs boson and the origins of baryonic and dark matters in our universe. Dr. Zhang will first discuss a simple UV completion of Higgs portal to fermionic dark matter that gives rise to dark matter bound states, and their peculiar property and phenomenology. As a second connection, Dr. Zhang show how the Higgs field evolution in the early universe could provide the necessary CP violation source that enables the cogeneration of asymmetries in both baryons and dark matter. Dr. Zhang will also discuss the phenomenological implications and how these ideas can be tested in the future experiments.